

WHAT IS CLAIMED IS:

1. A pattern formation method comprising the steps of:
forming a resist film of a chemically amplified resist material including a base polymer, an acid generator for generating an acid through irradiation with light and
5 lactone;
performing pattern exposure by selectively irradiating said resist film with exposing light while supplying a solution onto said resist film; and
forming a resist pattern by developing said resist film after the pattern exposure.
2. The pattern formation method of Claim 1,
10 wherein said lactone is mevalonic lactone, γ -butyrolactone, γ -valerolactone or δ -valerolactone.
3. The pattern formation method of Claim 1,
wherein said solution is water.
4. The pattern formation method of Claim 1,
15 wherein said solution is perfluoropolyether.
5. A pattern formation method comprising the steps of:
forming a resist film of a chemically amplified resist material including a base polymer, an acid generator for generating an acid through irradiation with light and a polymer containing lactone;
20 performing pattern exposure by selectively irradiating said resist film with exposing light while supplying a solution onto said resist film; and
forming a resist pattern by developing said resist film after the pattern exposure.
6. The pattern formation method of Claim 5,
wherein said lactone is mevalonic lactone, γ -butyrolactone, γ -valerolactone or δ -
25 valerolactone.

7. The pattern formation method of Claim 5,
wherein said polymer for containing said lactone is poly(acrylic ester) or
poly(methacrylic ester).
8. The pattern formation method of Claim 5,
5 wherein said solution is water.
9. The pattern formation method of Claim 5,
wherein said solution is perfluoropolyether.
10. A pattern formation method comprising the steps of:
forming a resist film of a chemically amplified resist material including a base
10 polymer, an acid generator for generating an acid through irradiation with light and
carbohydrate lactone;
performing pattern exposure by selectively irradiating said resist film with
exposing light while supplying a solution onto said resist film; and
forming a resist pattern by developing said resist film after the pattern exposure.
11. The pattern formation method of Claim 10,
15 wherein said carbohydrate lactone is D-gluconic acid δ -lactone, β -D-
glucofuranuronic acid γ -lactone or L-mannal acid di- γ -lactone.
12. The pattern formation method of Claim 10,
wherein said solution is water.
13. The pattern formation method of Claim 10,
20 wherein said solution is perfluoropolyether.
14. A pattern formation method comprising the steps of:
forming a resist film of a chemically amplified resist material including a base
polymer, an acid generator for generating an acid through irradiation with light and
25 sultone;

performing pattern exposure by selectively irradiating said resist film with exposing light while supplying a solution onto said resist film; and

forming a resist pattern by developing said resist film after the pattern exposure.

15 15. The pattern formation method of Claim 14,
wherein said sultone is pentane-2,5-sultone or naphthalene-1,8-sultone.

16. The pattern formation method of Claim 14,
wherein said solution is water.

17. The pattern formation method of Claim 14,
wherein said solution is perfluoropolyether.

10 18. A pattern formation method comprising the steps of:
forming a resist film of a chemically amplified resist material including a base polymer, an acid generator for generating an acid through irradiation with light and sultine;
performing pattern exposure by selectively irradiating said resist film with exposing light while supplying a solution onto said resist film; and

15 forming a resist pattern by developing said resist film after the pattern exposure.

19. The pattern formation method of Claim 18,
wherein said sultine is 3H-2,1-benzoxathiol=1-oxide.

20. The pattern formation method of Claim 18,
wherein said solution is water.

20 21. The pattern formation method of Claim 18,
wherein said solution is perfluoropolyether.